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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,188	09/21/2001	Christine Connolly	013344-9027	6355

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EXAMINER

MISLEH, JUSTIN P

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,188

Applicant(s)

CONNOLLY ET AL.

Examiner

Justin P. Misleh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 30 is/are pending in the application.
- 4a) Of the above claim(s) 15 - 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 January 0921 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Claims 1 – 15 in the reply filed on 11 April 2005 is acknowledged.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. **Claims 1 and 4 – 6** are objected to because of the following informalities: inconsistent claim language.

- **Claim 1:** “establishing the point” is stated wherein no “point” has been previously introduced. The Examiner recommends stating, “establishing a point”.

- **Claims 4 – 6:** “setting the point of zero light intensity” is stated wherein “point of zero light intensity” has been previously introduced. The recommends stating, “setting a point of zero light intensity”.

4. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1 – 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayar et al. in view of Sakai et al.

7. For **Claim 1**, Nayar et al. disclose, as shown in figures 2, 3, 4A, 5A, 6 – 8 and as stated in columns 7 (lines 36 – 65), 8 (lines 12 – 65), 9 (lines 35 – 46), 10 (lines 15 – 19), 12 (line 55) – 13 (line 5), a method of calibrating a color monitoring system so as to compensate for non-ideal real camera characteristics, the method comprising:

establishing a point at which a graph of input light intensity against camera output voltage starts to deviate from a substantially linear characteristic, hereinafter referred to as establishing the knee (115, 119, and 123; clearly disclosed in figures 6 – 8.); and

restricting the amount of light incident on all sensor elements (mask 401 is used to restricting light; see figure 4A) of the camera (see figure 2) such that the maximum output corresponds to a voltage at, or below, the knee, and lower light intensities are all within the range of linear operation (see column 8, lines 6 – 52 and column 9, lines 60 – 67).

While Nayar et al. disclose a method of establishing a knee point and such that output signals conforms to a linear characteristic; Nayar et al. does not disclose establishing a camera offset by measuring or calculating the output voltage of the camera when substantially no light falls on any of its sensor elements, hereinafter referred to as establishing the offset.

On the other hand, Sakai et al. also disclose a method for compensating real camera characteristics. More specifically, Sakai et al. disclose, in accordance with figures 1 and 2 and column 4 (line 29) – column 5 (line 49), an image processing apparatus that at least includes a shutter (2) and a photoelectric conversion unit (3) which includes a plurality of pixels. Furthermore, Sakai et al. disclose that when a user operates a release button, the shutter (2) is opened and the plurality of pixels of the photoelectric unit (3) captures an image of the subject that has passed through the lens (1) and the opened shutter (2). After the image of the subject has been captured, the shutter (2) is closed, such that light passing through the lens does not pass through the shutter (2) to the photoelectric conversion unit (3); hence, allowing the photoelectric conversion unit (3) to capture a dark image that represents noise. The noise capturing operation, while the shutter is closed, is repeated two or more arbitrary times such that a plurality of dark images are captured so that an averaged dark image can be calculated to represent the average noise of the photoelectric conversion unit (3). The averaged dark image is an “offset” that is subtracted the subject image to produce a final image with reduced noise. Clearly, Sakai et al. teach establishing a camera offset by measuring or calculating the output voltage of the camera when substantially no light falls on any of its sensor elements, hereinafter referred to as establishing the offset.

As stated in column 1 (lines 30 – 35), at the time the invention was made, it would have been obvious to one with ordinary skill in the art to have included establishing a camera offset by measuring or calculating the output voltage of the camera when substantially no light falls on any of its sensor elements, hereinafter referred to as establishing the offset, as taught by Sakai et

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al., in the method, disclosed by Nayar et al., for the advantage of reducing fixed pattern noises without increasing random noises.

8. As for **Claim 2**, Sakai et al. teach that when a user operates a release button, the shutter (2) is opened and the plurality of pixels of the photoelectric unit (3) captures an image of the subject that has passed through the lens (1) and the opened shutter (2). After the image of the subject has been captured, the shutter (2) is closed, such that light passing through the lens does not pass through the shutter (2) to the photoelectric conversion unit (3); hence, allowing the photoelectric conversion unit (3) to capture a dark image that represents noise. Therefore, Sakai et al. teach that the offset is established on a periodical basis.

9. As for **Claim 3**, Sakai et al. teach that when a user operates a release button, the shutter (2) is opened and the plurality of pixels of the photoelectric unit (3) captures an image of the subject that has passed through the lens (1) and the opened shutter (2). After the image of the subject has been captured, the shutter (2) is closed, such that light passing through the lens does not pass through the shutter (2) to the photoelectric conversion unit (3); hence, allowing the photoelectric conversion unit (3) to capture a dark image that represents noise. Therefore, Sakai et al. teach that the offset is established whenever an image capture operation for capturing a desired image is carried out.

10. As for **Claims 4 – 6**, the features of these claims are inherent to what is required by the claim language. In other words, closing the camera iris, capturing a black image, or extrapolating measurements of known black reflectance will always generate a point of zero light intensity. Since the claimed features are inherent to the claim language; they are equally inherent to the camera of Nayar et al. and/or Sakai et al.

11. As for **Claim 7**, Nayar et al. discloses, as shown in figure 4A and as stated in column 7 (lines 55 – 65), that mask (101) may be built-in to the image sensor (165), thereby functioning as a an image filter. Therefore, Nayar et al. disclose wherein one point of known reflectance comprises an integral part of the desired image itself.

12. As for **Claim 8**, Nayar et al. discloses, as shown in figure 4A and as stated in column 7 (lines 55 – 65), that mask (101) may be built-in to the image sensor (165), thereby functioning as a an image filter. The mask (101) is comprised of white and black know reflectance components (see figure 4A). Therefore, Nayar et al. disclose wherein one point of known reflectance comprises a white e reference tile within the image field.

13. As for **Claim 9**, Nayar et al disclose, as shown figure 5A, ensuring that maximum reflectance is achieved via mask (101) and capture of black and white objects. Therefore, Nayar et al. disclose wherein there is provided a source of maximum light reflectance within the image field by ensuring that a white object is present somewhere in the image field.

14. As for **Claim 10**, Nayar et al. disclose an aperture (403) and a mask (101) to restrict light input tot the image sensor (165) such that camera operates linearly according to figures 4 – 6. Furthermore, Nayar et al. disclose in figures 2 – 6 that the mask (101) fixed as known reflectance; therefore, Nayar et al. does in fact reduce the aperture (403) such that together with the mask (101) the camera operates linearly.

15. As for **Claim 11**, Nayar et al. disclose an aperture (403) and a mask (101) to restrict light input tot the image sensor (165) such that camera operates linearly according to figures 4 – 6. Furthermore, Nayar et al. disclose in figures 2 – 6 that the mask (101) fixed as known reflectance; therefore, Nayar et al. does in fact reduce the aperture (403) such that together with

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the mask (101) the camera operates linearly according to the full scale values shown in figures 4 - 6.

16. As for **Claim 12**, Nayar et al. is directed to adjustment of the camera such captured images of objects with known reflectance (see figure 5) using the fixed mask (101) and the reduced-set aperture (101) produce images having the known reflectance. As stated in column 9 (lines 25 – 45) and column 12 (line 55) – 13 (line 5), when captured images are in the linear region known white is registered in the captured images.

17. As for **Claim 13**, Nayar et al. is directed to calibration prior to image capture wherein Sakai et al. is directed to real-time correction during image capture. Therefore, Nayar et al. in view of Sakai et al. teach that the knee (Nayar et al.) is established less frequently (once versus every image capture) the offset (Sakai et al.).

18. As for **Claims 14 and 15**, while Nayar et al. disclose a calibration stage for establishing the knee once the calibration stage requires a plurality of image captures. As clearly shown in figure 6, the curve (113) begins prior to any image capture at the origin (fairly non-linear) to after a plurality of image captures (see dotted lines) wherein the curve is fairly linear. Therefore, Nayar et al. disclose wherein the step of establishing the knee is carried out before and after commencing a plurality of image capture operations. It is important to note, the claim language defines a print run as comprising a plurality of image captures.

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Cited Prior Art

19. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure because each cited reference as least teaches of a method for adjusting a camera output value by an auto-knee circuit or saturation suppression circuit.

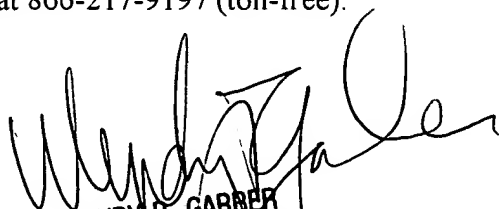
Conclusion

20. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 5:00 PM and on alternating Fridays from 8:00 AM to 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wendy R Garber can be reached on 571.272.7308. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
June 27, 2005


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